

Samuel V. Arsenault

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Education

- University of Georgia, Athens, GA, USA
 - Integrated Life Sciences (ILS) Ph.D. Program (Fall 2015)
 - Department of Entomology Ph.D. Program (Spring 2016-Present)
 - Major Advisor: Brendan Hunt (Assistant Professor, Department of Entomology)
 - Co-advisor: Robert Schmitz (Assistant Professor, Department of Genetics)
- University of Georgia (UGA), Athens, GA, USA
 - Bachelor of Science, Biology with Concentration in Neuroscience (Spring 2015)
 - Bachelor of Science, Mathematics (Spring 2015)

Research Experience

- Brendan G. Hunt: Evolutionary Insect Genetics Lab, UGA (First ILS Rotation and Current Lab)
 - Studying the effect of maternal care on DNA methylation patterns in *C. calcarata*
 - Studying the molecular evolution of DNA Methyltransferases in Hymenoptera
 - Studying the molecular evolution of the Gp-9 Supergene in *S. invicta*
- Schmitz Laboratory, UGA (Third ILS Rotation and Current Lab)
 - Studying DNA methylation patterns in *P. canadensis*, *D. quadriceps*, and *N. vespilloides*
 - Studied Transcription Factor binding domains in *Z. mays*
- Tarleton Laboratory, UGA (Second ILS Rotation)
 - Studied the applications of the CRISPR-Cas9 system to work on *T. cruzi*
- Laboratory for Fungal Genomics and Computational Biology (FGCB), UGA (January 2014-Present)
 - Studied genetic network which gives rise to circadian rhythm in *Neurospora Crassa*
 - Studied how synchronous behavior arises in networks of cells using computational modeling
 - Modeled Genetic Networks using GKN
 - Modeled Biological Systems using MATLAB, C++, and CUDA
- Nanotechnology and Biomedicine Research Experience for Undergraduates (REU), College of Engineering, UGA (Summer 2014, Summer 2015 (as a supplementary participant))
 - Applied microfluidics techniques to study circadian rhythms in individual cells
 - Synthesized PDMS microfluidics devices for single cell encapsulation
 - Analyzed single cell fluorescence data for periodic components
- Laboratory for Neuroengineering, Georgia Institute of Technology, Atlanta, GA, USA (Spring 2011)
 - Internship researching applications of Neural Stem Cells (NSC's) as therapeutic treatment for neurological disorders such as Parkinson's disease

- Tested growth and differentiation of NSC's in various media

Teaching Experience

- Graduate Laboratory Assistant for BIOL 1108L (Spring 2017)
 - Organizing and teaching the lab portion of introductory biology for science majors focusing on research techniques and general concepts in biology.
- Part-time Teaching Assistantship: BIOL 1108 taught by Kathrin Stanger-Hall (Spring 2016)
 - Helped to develop in-class assignments, lead discussion groups, and grade exams
- Tutor with UGA MathCounts (2013)
 - Group whose purpose is to foster interest in mathematics in middle school students
- Mathnasium at Woodlawn Square – Marietta, GA, USA (2010-2011)
 - Mathematics tutor for students from age 5-18 in all levels of mathematics up to and including AP Calculus

Grants, Awards, and Scholarships

- Innovative and Interdisciplinary Research Grant (Summer 2016)
 - Grant awarded by the University of Georgia Graduate School
- University of Georgia Dean's List (Fall 2014 – Spring 2015)
- HOPE Scholarship (Fall 2011 – Spring 2015)
 - In-state scholarship based upon academic performance
- Delta Scholarship (Fall 2011 – Spring 2012)
 - Academic Scholarship for family of Delta Airlines employees

Publications

Deng, Z., Arsenault, S., Zhu, T., Cheng, R., Griffith, J., Arnold, J., Mao, L., "Single Cell Measurements on the Biological Clock by Microfluidics," Proc. of 18th International Conference on Miniaturized Systems for Chemistry and Life Sciences (MicroTAS), San Antonio, Texas, USA, pp. 881-883, October 2014.

Deng, Z., Arsenault, S., Caranica, C., Griffith, J., Taotao, Z., Al-Omari, A., Schüttler, H.B., Arnold, J., Mao, L. Synchronizing stochastic circadian oscillators in single cells of *Neurospora crassa*. *Scientific Reports*. 2016. Accepted, in press.

Conferences and Presentations

- Poster Presentation at the 43rd annual Southeastern Population Ecology and Evolutionary Genetics meeting (October 2016)
- Poster Presentation at the Southeast BME Regional Conference (October 2015)
 - Presented the results of my work in the FGCB Laboratory
- Presentation at the College of Engineering REU Research Symposium (July 2015)
 - 20 minute presentation about research findings to REU mentors and guests
 - Helped to organize the event
- Poster Showcase of REU@UGA (July 2015)

- Presentation for REU Participants (July 2014)
 - 20 minute presentation about research findings to REU mentors and guests
 - Presented results of summer work to UGA faculty and guests

Additional Skills

- Programming Languages: MATLAB, C++, R, Bash, AWK, and Python
- Programming Models: CUDA
- Attended Galaxy Workshop, UGA (October 2014)
 - Gained experience with cloud-based bioinformatics application: Galaxy